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## INDUSTRIAL GEOGRAPHY OF PETROSANI RAYON

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The Jiu Valley is one of the most important coal sources of the Rumanian People's Republic. Coal from the Jiu Valley has a particular significance in the economy of Rumania and in the development of Rumanian socialist industry. Coal has a heavy use in the metallurgical process, for obtaining ferrous metals, in electrification, industry, and transport, where constantly increasing quantities of coal are necessary. The upper valley of the Jiu, with its rich coal beds, occupies a significant place in the economy of Rumania.

Guided by the Leninist-Stalinist teachings that the process of building socialism requires a continuous and powerful development of the forces of production, the Rumanian Worker's Party and the government of Rumania accord particular concern to the Jiu Valley coal basin. The constantly increasing quantities of coal which the miners of this basin give to Rumanian industry show that they are conscious of the responsibility put on them, for coal is the staple of industry.

### HISTORICAL AND GEOGRAPHICAL DATA ON THE JIU VALLEY COAL BASIN (PETROSANI RAYON)

The Jiu Valley basin has been known to have coal but for a relatively short time, about one century. Under the conditions of feudal production, the actual region, that is, Petrosani Rayon, formed part of the property of the Hungarian counts and dukes (A. Andrassy, Tspatskay, Hadespack, Kendeffy,

such, in the region had a much more important role from the forest-pastoral point of view.

Along with the intensification in cutting down the forests, the local coal resources were also discovered. The economic opportunities in continuous growth, the utilization of coal, which was the new richness of the region brought it about that the Jiu Valley was used much less as a forest-pastoral area for hunters and as an area for leisure and recreation by the dominant classes. In a very short time it became, through the labor of both the native inhabitants and those who came from elsewhere, a source of wealth for the nobility and for the Austro-Hungarian and Rumanian bourgeoisie which was developing.

Documents show that in this region the first coal deposits were discovered long before 1840. Systematic exploitation of the coal was started between 1850 and 1870 by the "Brasov Company for Mines and Furnaces," particularly in the Vilcan and Petrosani localities. This period coincides exactly with the stage in which western capital began to penetrate more and more into eastern Europe. The exploitation of coal was begun under these conditions also in the eastern part of the basin, at Petrila and Lonea.

The first exploitation was completely rudimentary, touching only the surface, and consisted of strip mining the coal strata and then transporting it in small carts.

The new method of production in development, that is, the capitalist production method, brings thereby the more and more developed and perfected means of production into all branches of the economy. Under these new conditions in the exploitation

of the Jiu Valley they changed from the first form of exploitation of the coal by strip mining to the system of opening the mines by means of horizontal galleries and shafts which extended downward and in the direction of the strata. Between 1867 and 1870 the Simeria-Petrosani railroad line was also constructed.

The increased interest of the capitalists in this precious wealth led to the spreading of exploitation from the east of the depression, where the first openings had taken place, to the west of the depression, where in 1890 the Aninoasa mine group was opened, and in 1892 the mines of Lupeni were opened.

In the evolution of the miners' property in this region we know the following: The Petrile mines were exploited by Austro-Hungary between 1870-1894, when they became the property of the "Salgo-Torjani" company which exploited them until 1922.

After World War I, the mines of the Jiu Valley passed from Austro-Hungary to Rumania, under the "Petrosani" company, a company of landowners and Rumanian, Hungarian, and foreign capitalists.

In 1931 the Petrosani and Vilcan mines were closed because the stockholders of the Jiu Valley figured that the effects of the economic crisis of 1929-1933 should be borne by the working class and not by themselves.

In 1947 the exploitation spread more to the west, forming the bases of the Urlicani mine group.

The mines of the Jiu Valley were recklessly exploited until the revolutionary decree of 11 June 1948, when they became the complete property of the Rumanian working people.

Evolution of production. The production of coal in the Jiu Valley began in 1868 with 852 t. In 1870, as a result of the construction of the Simeria-Petrosani railroad line, production grew constantly, reaching 254,109 t annually. From 1870 to 1892 production fluctuated between 109,106 and 233,519 t annually. From 1892, in the period preceeding World War I, coal from the Jiu Valley was sought more and more due to the development of the railroad network. For this reason the production of coal grew progressively, reaching 2,230,135 t in 1913. During World War I, because of the insecurity of the capitalists, the lack of a labor force, the war outlook, etc, production dropped, reaching 1,578,026 t in 1916. Between 1919 and 1930 production rose again, reaching 2,670,551 t annually in 1928.

It is remarkable that in the time of the 1929-1933 crisis, the price of coal from Rumania was much lower than that of coal imported from Belgium, France, or Poland. This situation, as well as the fact that the locomotive depot grew at a much greater rate, caused the extraction of coal to remain well in step with the consumption requirements.

In 1931 coal production dropped from 2,670,551 t, which it had reached in 1928, to 1,261,034 t. The production drop around 1931 is explained by the above causes and by the fact that under the conditions of the crisis of 1929, the Rumanian and Hungarian bourgeoisie resorted to discharging the workers,

to eliminating investments for equipment, and to closing the mines. In 1929-1933, the working miners were fired en masse. At this stage the Petrosani, Vilcan, and Ciopa (Ionea) mines were closed.

The heroic struggles of the miners of the Jiu Valley in 1929-1933 against the exploiting classes form a significant chapter in the history of Rumania.

In order to prepare for World War II and to increase the (national) income, the German and autochthonous bourgeoisie took every kind of measure in order to raise the production of coal. Thus, as the work in the mines became militarized, the working conditions of the miners became harsher. In 1940 coal production mounted to 2,331,833 t, then increasing steadily up to 1941 due to the much greater requirements of war industry and transportation imposed by the German war machine. After this date production dropped to 2 million t, although Rumania led by the Antonescu clique was still in the midst of war (Figure 1).

The production drop of the year 1943 and the following (years) in spite of all the militaristic-fascistic measures imposed by the government is explained by the fact that the miners, led by the PCR [Partidul Comunist Romania -- Rumanian Communist Party], carried on intense sabotage in the unjust war against the USSR into which they were led by the Antonescu clique allied with the German fascists.

At about the end of 1948, production of coal in the Jiu Valley reached 2,201,480 t. From this date on, which coincides with the year of the nationalization of the means of production,

coal production in the Jiu Valley grew constantly. The re-organization of the units for the extraction of coal, that is, models of the socialist organization of the work of extracting coal, the use of advanced Soviet technology, the continued improvement of the material living conditions of the miners, increased salaries, concern for culturalizing the masses, concern for the health of the people, and, in particular, concern for the protection of the miners in the mines and the creation of comfortable living quarters for the miners, explain fully this increase of coal extraction in the Jiu Valley.

#### ELECTRIFICATION OF PETROSANI RAYON

##### A. Coal, the Coal Industry

In 1945 at the National Conference of the PCR comrade Gh. Gheorghiu-Dej stated that the development of heavy industry is closely linked with the development of the coal industry, which assures the necessary coke for metallurgy. For this reason the most complete utilization possible of the Jiu Valley coal beds is necessary. Concerning this comrade Gheorghiu-Dej said: "In this first stage there is also included the necessity for the most complete utilization possible of the coal beds in the Jiu Valley, which form an organic industrial entity with the iron ore beds of Hunedoara" (1) (page 65).

At the conference with the miners from Petrosani in June 1952 comrade Gheorghiu-Dej showed the special importance of these industrial branches to the development of Rumania's national economy in general and of Rumanian heavy industry in particular. Comrade Gheorghiu-Dej said: "The electrification plan and the application of the principle of district heating,

the development of metallurgy on the basis of the production of coke made in Rumania, the coal requirements of rail transportation and of industry determine the development of coal production in the course of the First Five-Year Plan and also indicate the development outlook for the Second Five-Year Plan (1) (page 664).

The Jiu Valley coal basin is situated in the upper course of the 2 Jiu rivers, the East Jiu and the West Jiu, from whence we also get the name of the coal basin "the Jiu Valley."

This basin is a syncline of extended triangular form with an east-northeast to west-southwest direction.

The mines are on the northern and southern sides of this basin. Starting out from east to west we find the following developed mines: on the north side of the basin, Petrila, Aninoasa, and Vilcan, and on the southern side, Lonea I (Cimpa), Lonea II, Lonea III (Jiet), Lupeni, and Uricani.

The coal beds of the Petrosani basin today form one of the most important coal reserves available to Rumania. The great quantity and superior quality of this coal has contributed to the development of the coal industry of Rumania. The Jiu Valley is the primary coal source of Rumania.

The Petrosani basin is a sedimentary complex composed of 3 superimposed levels which have a length of about 1,000 m.

From the economic point of view, the lower level, that is, the base level, is unproductive. In (geological) age it is Oligocene.



The middle level is still a productive level. In age it represents the Upper Oligocene and Aquitanian.

The upper level is also unproductive. It represents the Aquitanian.

The middle level, that is, the productive one, is about 350 m in length and is composed of 18 strata of coal. The quality of the coal as well as its size differs from mine to mine. Some strata have been mined intensely, some less and some not at all. In general the strata are complex. Strata 8, 9, 13, 15, 17, and 18 are more compact and cleaner. In general the composition of the coal varies from strata to strata.

In the composition of the Jiu Valley coal strata we can observe a lack of homogeneity not only in the coal from the mines, but also in the blocks of coal brought out to the surface. This lack of homogeneity consists of the differences in the luster which some strips have on the perpendicular faces of the stratification.

Seen with the naked eye, coal from the Jiu Valley has the following characteristics: strips of lenticular-shaped coal, long or short, wide or narrow, and lustrous or dull. These strips have a different external appearance. They present different characteristics not only under microscopic examination but also under chemical examination.

Glance coal, durain, and fusain enter into the petrographic composition of this coal.

The glance coal of the Jiu Valley Aquitanian coal has a wood-like structure which has brought about the belief that

for the most part the original material of the glance coal was wood. In appearance, glance coal is black, shiny, "casant," having the richest content of carbon and the lowest content in ash. Important from the economic point of view is the fact that glance coal can be made into coke. Due to this quality, coal from the Jiu Valley will assure in the appropriate future the necessary coke for our metallurgical industry in Hunedoara. Similarly, glance coal has a great tendency to change itself into coal dust. This dust is found suspended in the subterranean atmosphere of the workings and subterranean galleries. Analysis of the coal dust explosions and the self-ignition of the coal shows that glance coal is the component to be most feared. For this reason, from the economic viewpoint as well as from the health viewpoint, special measures must be taken.

In the coal strata, bands of glance coal alternate with bands of durain.

In appearance, durain is black in color, compact, dull, much harder than glance coal, has a lower carbon content and a greater ash content, and is rich in volatile substances. From the point of view of its origin, durain represents an aggregate formed by an infinity of plants. From the economic viewpoint, durain has a great importance in the operations for obtaining gases, coal tars, etc, inasmuch as the coal strata which contain durain have a much greater content of coal tars and gases. Because of this property the coal from the Jiu Valley offers great opportunities for chemicalization.

The third component of Jiu Valley coal is fusain, formed from small lumps which alternate with glance coal and durain.

The problem of the origin of fusain is still unsolved.

Beside these 3 components of the coal from Jiu Valley, we find scattered in the coal mass in the form of granules and mineral components: pyrites, chalcopyrites, marcasite, calcium carbonate, ferrous carbonate, etc, which can be of primary nature, that is, formed at the same time as the coal, or of secondary nature, when we find it usually in the form of thin sheets which fill the crevices and holes found in coal.

From the economic point of view it is important to know if a mineral found in coal is of primary nature or of secondary nature since in the operations of the mechanical preparation of the coal, the elimination of the mineral components of a secondary nature can be achieved more easily than those of a primary nature which require a more difficult operation for elimination.

In general the study of the structure of coal has a great importance in the process of its industrialization, that is, regarding operations of coking it, briquetting, mechanical preparation, underground fires, coal dust explosions, etc. This study is closely connected with our study of the coal industry.

In regard to the quality of the coal in the Jiu Valley, starting from the east of the basin and proceeding to the west its quality improves, the coal from the west being of superior quality.

Due to the fact that in the west of the basin there are found significant reserves of superior coal, the plans of the state provide for the establishment of a series of coal improvement

stations in this region, as well as a semicoking plant. This semicoking plant will produce the semicoke necessary for the Hunedoara metallurgical plants. The development of the extraction and processing of coal in this part of the basin is explained not only by the quantity but more especially by the quality (glance coal). The caloric energy of the Jiu Valley coal varies between 6,200 and 7,200 calories.

The characteristics of the coal from the Jiu Valley (Lupeni, Urlicani, and Cimpul lui Neaz) are the same as for mineral coal.

Figuring according to the % of low humidity, according to the carbon content, according to the caloric energy, and according to the low ash content, the coal from the Jiu Valley is situated at the borderline between brown coal and mineral coal.

Brown coal is generally an appreciated fuel. Some varieties can be made into coke, giving metallurgical and industrial products. It is also distilled to obtain gases and coal tars. In general coal from the Jiu Valley is lustrous, black in color, and leaves a brown mark on a porcelain plate. When it is in lump form it generally has a black color, and when in powder form it has a brown coloration. Scratch tracings are completely brown.

The other natural conditions, namely the hydrography of the region, its vegetation, and its soil and subsoil, similarly have a strong influence in the development of the economy of this rayon.

The Petrosani depression is penetrated by numerous waters, the affluences of the 2 Jiu rivers, which offer important water resources for drinking purposes, industry, and transportation (for transportation of wood). The 2 Jiu rivers particularly offer the necessary industrial water for the 2 improvement stations (Petrila and Lupeni).

Although there are numerous resources of drinkable water, all human settlements (cities and communes) do not have sufficient water. This is due to the insufficient (number of) installations left to the region by the bourgeoisie for the procurement of water, and it is due to the rising consumption of local industry in (its) continued development. Therefore, in addition to the other preoccupations, the supply of drinking water for the upper valleys of the Jiu is a problem which demands immediate solution.

The wood from the forests of Petrosani Rayon besides its other uses is also used in mining. Sands, gravels, limestones, and waste heaps are also greatly used not only in the supplementary industries to the coal extraction industry, but also in the construction which is being done today in Petrosani Rayon.

The coal processing industry is represented in the Jiu Valley by coal improvement stations (washers for coal) in Petrila and Lupeni. In the process of the industrialization of coal, in the framework of the 2 improvement stations in the Jiu Valley, and in the operations of mechanical preparation, the greatest possible lowering of the ash content is sought, in order to obtain coal of a superior quality which is necessary for industry and for railroad consumption.

Coal from the Lonea I and III and Petrila mines is improved in special improving installations at Petrila where at the same time they use the coal dust which is briquetted.

The installations at Lupeni only wash and divide the coal into types.

Supplying the Coal Enterprises with Semimanufactured Raw Materials and Auxiliary Materials. The miners' construction trusts (at Petrosani and Lupeni) also enter into the Jiu Valley combine. These trusts procure the necessary materials for construction and mining. Thus, for example, some of these mine workings have one frame saw each which produces the wood necessary for the mines at the local level. Thus at Lonea III the frame saw produces the wood necessary for Lonea I, II, and III, at Petrila the wood necessary for the Petrila group of mines and at Aninoasa and Lupeni for the western group. In general the frame saws use wood which is locally obtained by the lumber exploitations of the IFIL

from the respective region. In addition to the frame saws, the coal industry still has a series of supplementary industries, for example, the construction material industry (masonry, cementing, bricks, tiles, and cement blocks (Petrila has a cement mill)), enterprises which are almost next to each mine.

The coal industry of the Jiu Valley has a mining equipment factory which produces mining conveyances and endless bands and miner's trolleys and which makes repairs on mining equipment.

There is an oxygen factory at Lupeni (necessary for local industry) (Figure 2).

Production Means and Work Methods. In the past, although the Jiu Valley supplied about 3/4 of the total coal extracted, nevertheless the mechanization of mining work was reduced, while in the mechanized mines the equipment was of inferior quality and of the most varied type. Our coal industry has been able to reach its great achievements of today because of the permanent and multilateral aid given by the USSR which has sent us the most advanced mining equipment (mining hammers, drills, mechanical coal cutters, loading machines, pumps, compressors, ventilators, shaking shoots and endless bands, mine hoists, mine locomotives, electric mining lamps, etc).

In reference to mining equipment, it is a noteworthy fact that the first mining hammers, pneumatic drills, endless bands, mine locomotives and cars, etc began to be manufactured by us in our own country as early as 1950. In addition to the mining equipment factories of Petrosani, the "Steagul Rosu" factories of Orasul Stalin, "Unic" of Satu Mare, and "Electroputere" of Craiova produce equipment for the coal industry.

For the first time new coal mining methods have been introduced which replace the old, unproductive methods so wasteful of the labor force. Thus, for example, in the Jiu Valley there was introduced for the first time new methods such as the method of frontal working. In this way the Rindin method was introduced. This is a method which widens the intermediary preparatory drift, achieving with this a reduction in the cost price, an increase of work productivity, and increased production.

The Petrila mines use the most modern mine timbering method in the country, with Soviet-made metal frames. Through this method the use of pit props is reduced by about 50% and the consumption of explosives by more than 5%, thus bringing an increase in productivity.

Transport of coal in the rayon is made on narrow gauge industrial rail lines, by aerial cableways, standard railroads, and highways. Thus, for example, there is an industrial railroad from Petrosani to Lonea III, Lonea I, and Lonea II. CFI

ships the coal to Petrila station which is also connected with the Petrosani center by means of a standard rail line used only for the transport of coal.

Consumption centers. The coal from the Jiu Valley, being available in great quantity, of superior quality, and localized in a single basin, is used a great deal by the railroads. In the very near future, moreover, this coal will serve in the semicoking plant which will produce the semicoke necessary for heavy industry. For electrification it will be used only by local thermoelectric power plants.

In general the Jiu Valley coal is consumed by the railroads by more than 50%, the metallurgical industry in Resita by about 10%, while the remainder is used by other industrial enterprises and in local consumption (Figure 3).

The labor force. In general the mine workers are local residents or come from other parts of the country. The lack of housing has to a great extent been liquidated in the years of the people's sovereignty through the construction of



thousands of apartments, numerous houses, barracks, spas, etc.

The party and the government have particular concern for the miners of the Jiu Valley. Thus, of the 9,000 miner's apartments built in the framework of Rumania's First Five-Year Plan, 5,000 of these apartments are destined for the miners of the Jiu Valley.

These living quarters are built near the coal mines, (thus) creating new worker's centers. In these new cities, dispensaries, polyclinics, hospitals, nurseries, small gardens, schools, clubs, theaters, etc are built near the homes.

These achievements, together with others, contribute in the greatest measure towards raising the level of living for the miners of the Jiu Valley.

In order to train the necessary personnel for the coal industry of the Jiu Valley, qualified professional schools which prepare master miners have been created. These schools are in operation near each mine. Beside these schools, Petrosani still has the "George Gheorghiu-Dej" Coal Institute which trains engineers recruited from the ranks of the workers.

#### B. Electric Power, Power Plants, Electrification of the Rayon

Today in Petrosani Rayon there are 3 thermoelectric power plants. The Petrosani thermoelectric power plant is under construction. These thermoelectric power stations supply electric power to the coal industries of the Jiu Valley as well as to other industries. In this way they also serve the needs of the civil population.

#### THE OTHER INDUSTRIES OF PETROSANI RAYON

In Petrosani Rayon, besides the principal branch, the coal industry, in the territorial complex of production we find a series of other industrial branches which utilize local resources. Thus the "6 August Petrosani" company has a series of industrial branches, namely (a) extractive, (b) wood, (c) forestry, (d) construction material, (e) metallurgical workshops, (f) supply industry, and (g) various branches.

The wood products are utilized to a small extent by the IFIL for forest areas, by the "6 August Petrosani" company, and by the supplementary industries of mining. A series of other industries (textile, metallurgical, craftsmen's cooperatives, etc) are also found in the rayon.

#### The Metallurgical Industry

The metallurgical industry is represented in Petrosani Rayon by the mining equipment factory in Petrosani, the CFR [Căile Ferate Române — Romanian State Railroads] workshops and depot, and the different mechanical repair workshops devoted to the needs of the rayon.

The railroad workshops and the railroad depot are situated in the locality of Petrosani. They make the repairs and assemble the parts necessary at the depot for the locomotives and railroad cars which enter the coal basin of the Jiu Valley.

The mechanical workshop, belonging to the Petrosani communal enterprises, makes the necessary repairs for turners workshops, fitters workshops, and wheel workshops.

The Lupeni blacksmith's workshop and the Petrosani repair workshop belong to the "5 August Petrosani" company.

The Petrosani tin plate workshop, belonging to the communal enterprises, serves local needs.

#### The Chemical Industry

The chemical industry in Petrosani Rayon is represented by the oxygen factory at Lupeni. It supplies oxygen to the metallurgical industry of the region. The Lupeni carbon disulfide factory, belonging to the "Viscosa" company, produces the carbon disulfide necessary for the textile industry and agriculture.

#### The Limestone Extractive Industry

Of the auxiliary industries which enter into the production complex of Petrosani Rayon, special attention is merited by the limestone mines of the Banita and Pestera Bolii localities. These mines are among the largest limestone mines in Romania. The limestone from these localities is distinguished by its superior quality and is used to a heavy degree in various branches of industry especially as a flux material in ferrous metallurgy, in the manufacture of lime, the manufacture of construction materials, etc.

From the place where the limestone is taken out, great lumps of rock are transported to the processing place where the limestone is crushed before being sent to the different branches of industry.

The limestone quarries of these localities are mined by the "5 August Petrosani" company, which utilizes the local

resources of the rayon. Of the general income of this enterprise, the extractive industry provides about 50% of the total value.

Limestone quarries are still found in the Taia defile and are used for local needs.

Consumption Centers. From the place of production the transformed and sorted limestone leaves for the Hunedoara ferrous metallurgy industry, which consumes about 40% of the limestone production of the rayon, the Calan ferrous metallurgy industry, which consumes about 25%, the Timisoara sugar industry, which consumes 20%, and the Arad sugar industry 5%, the remainder of up to 1% being used by the metallurgical industry of Craiova (Figure 4).

Within the rayon, the limestone is used in new construction, protective walls, the Petrosani waste dumps, public constructions, in mines, and in the lime industry.

Labor Force. In the limestone extractive industry the workers generally come from other regions of the country. Workers from northern Moldova, Bihor, and the Hungarian Autonomous Province are specialists in this work.

#### The Lime Industry

In Petrosani Rayon we have the lime factory of Banita, the furnaces of Banita and Pestera Boili, which belong to the "6 August Petrosani" company, and the lime furnaces which belong to the mine construction enterprises of the rayon.

The lime factory of Banita has a production capacity of 10 t per day, to which there is also added the (output of) systematic furnaces of the place of extraction, Banita and Pestera Bolii, with about 6 t per day (in 1952).

The lime industry represents 15% of the total production of the enterprise.

The pressed and unpressed brick factory (Petrosani) uses clay from the local level as a raw material. The enterprise was founded in 1952.

Into the framework of the construction material industry there also enter the supplementary industries of the mining construction enterprises, which, beside the rock quarries and lime furnaces, also have brick factories as well as other construction materials.

It is a noteworthy fact that dead material, which contains sandstones, clays, marl, and coal schist, has been utilized on a large scale.

#### The Wood Industry

The forests of the Petrosani Rayon are utilized by 3 economic units, namely IFIL, the "6 August" company, and to a lesser extent by the Petrosani and Lupeni forest areas.

The IFIL exploitation in Petrosani Rayon have their center at Lupeni with 2 other subcenters, Petrosani and Ciupul lui Neag. Each subcenter has a number of other subcenters for the exploitation of the wood of this region.

Mass exploitation of the wood started after the opening of the coal mines of this basin. Since the wood necessary for the coal industry, that is, for pit props, was needed on a large scale, the coniferous forests were used especially for this purpose. Because of the great consumption of fir, there exist at present many more beech forests, whose area of distribution also extends into the area of the Norwegian spruce. We should note that the wood of this region was also used by the metallurgical industries of the area which needed work for carbonization.

The forest surface of the 2 forest areas, Petrosani and Lupeni, is about 66,000 ha, including MVF

Lupeni 32,167 ha and MVF Petrosani 34,000 ha.

A. IFIL Exploitations. Semimanufactured and manufactured production at the wood exploitation centers of Lupeni, Cimpul lui Neag, and Petrosani consists of the following types of materials: 1. (a) standard crossties for CF; (b) standard 2.60 crossties for CF export; (c) narrow gauge crossties for CFI; 2. staves and industrial quarter sections; 3. charcoal; 4. pit props; 5. saw wood; 6. wood for cellulose, firewood, etc. This production also includes secondary products, namely resin (the Jist workings) and Norway spruce bark for the tanning industry (the Ausel and Voevodul workings). As a general characteristic, the works in the east of the Petrosani basin produce crossties, staves, industrial quarter sections, saw wood, and pit props, while those in the west produce charcoal.

These materials are transported on water shoots, and on land by railroad and highways.

The majority of the forest workers are from Baia Mare Province (Maramures), Pitesti Province (Muscel Rayon), Craiova Province (Tg. Jiu Rayon) and from the Hungarian Autonomous Province (Odorhei Rayon). They are specialists in the work which they do. Thus there are shapers, "Corhanitori," crosstie workers, splitters, coopers, charcoal burners, etc (Figure 6).

At the workings there are communal shelters and food warehouses.

The consumption centers of the IFIL's wood products are as follows: The standard crossties are requested by the railroad, the narrow crossties by narrow industrial railroads, industrial quarter sections and staves by the barrel factories of Bucharest, Rimnicu-Vilcea, Tirgoviste and Caransebes. Saw wood and pit props are consumed by the mining extractive industry. Wood is used for cellulose at Zarnesti and Petresti. Charcoal goes to the metallurgical plants of Victoria Calan and the Gh. Gheorghiu-Dej Combine at Hunedoara (used in the chemical process of changing the iron ore into pig iron and steel). The firewood is apportioned and sent to the various centers of the country. The accessory products, namely resin and spruce bark, to the chemical and tanning industry of Cluj (Figure 7).

In this way IFIL procures material for export, 2.6 m crossties for Hungary and Czechoslovakia and charcoal (in July

1952 2 cars of charcoal were shipped to Czechoslovakia and 5 cars of charcoal to Switzerland).

The IFIL Petrosani Center. The workings in Polatistea, Rosia, Jiet, Ausel, Cerbu, and Voevodul belong to this center.

(a) The Polatistea workings, situated south of Petrosani at the confluence of the Polatistea and the Jiu, produces 73% firewood, 25% staves, and the remainder crossties (beechwood). Transport of the wood is made on dry shoots and one water shoot 4 km long. From the mouth of the workings to the final depot at Liveseni, transport is made by truck.

(b) The Rosia workings are situated 2 km north of Petrosani, on Rosia brook. These workings produce 60% firewood (beechwood), 35% crossties, 5% staves. Transport of the material is by water shoots 6.4 km long up to the mouth of the workings. Here trucks or horses are used.

(c) The Jiet workings are situated in the Jiet Valley, at the point where the Jiet, dropping from its narrow defiles, spreads into the valley, flowing through the limestone region towards Lonea. The production of this working in 1952 was as follows: from resinous woods, saw wood 55%, put props 25%, scaffolding logs for rural constructions 15%, wood for cellulose 5%; and from beechwood, firewood 55%, industrial quarter sections 45%. As secondary products the Jiet workings produce resin for the industry in Cluj. The wood is transported on water shoots and dry shoots for a distance of 15 km where side branches also join it.



(d) The Ausel workings are situated northeast of Petrosani at the confluence of Taia Brook and the Ausel. Production of these workings in 1952 was as follows: from resinous woods, pit props 30%, saw wood 70%; and from beechwood, firewood 70%, crossties 30%. As secondary products they collected spruce bark which is used in the tanning industry. In 1951 120 t of tannic acid were produced which were used by the "Iance Herbak" factory of Cluj. From the forests the wood is transported on water shoots for 7 km and dry shoots (2 km), continuing its transport on the CFR.

(e) The Cerbu workings are situated at the confluence of the Cerbu Brook and the East Jiu. Production is completely from beech, yielding 12% saw wood logs and the remainder firewood. The wood is carried on portable and dry shoots (1.2 km) and from the mouth of the workings by the CFR.

(f) The Voevodul workings are situated at the confluence of the Voevodu, Petita, and Balele rivers with the East Jiu. Production of these workings consists of semimanufactured products from beech (crossties 15%, staves 5%, industrial quarter sections 6%, beech log saw wood 5%, wood for distillation, and the remainder firewood and wood for charcoal). The secondary product is spruce bark. The material is transported on shoots (in Valea Voevodu, for 2.04 km; in Valea Eilele, for 1.85 km; in Valea Petita, for 0.55 km). From the mouth of the workings to Petrosani is 18 km.

The IF Lupeni Center. Straja, Valea Vacii, and Tusa belong to center.

(a) The Straja workings, situated in Valea Vacii, near Lupeni. Production of these workings is 90% firewood and the remainder crossties and staves.

(b) The Valea Vacii workings, situated to the west of Barbateni, on the Lupeni-Cimpul lui Neag highway. Production of these workings is about 90% charcoal, necessary for the metallurgical industry and for export.

(c) The Tusu workings, situated on the river of the same name, produce over 80% firewood and the remainder pit props, wood for cellulose, crossties, and staves (Figure 8).

The IFIL Cimpul lui Neag Center. Arsa, Bilug, Piriul Strugurelui, Buta, and Arcanul belong to this center.

(a) The Arsa workings are situated in the valley of the same name. They produce firewood, crossties, and industrial quarter sections. The wood is transported by dry shoots (2 km).

(b) The Bilug workings are situated in the Toplita Valley. They produce only charcoal (about 1,000 t annually). Transport of the wood is by shoot.

(c) The Piriul Strugurelui workings are situated on the slopes of the Strugurelui Brook by the West Jiu. Production is primarily charcoal (2,000 t annually), the rest of the production being crossties, staves, scaffolding logs, and saw wood.

(d) The Buta workings are situated at the confluence of the Buta brook with the West Jiu. They produce 900 t of charcoal annually, about 90% of the total production. The

The road from the village of Lupeni to the station is a distance of 1 km. The road from the station to the village of Lupeni is a distance of 1 km. The road from the station to the village of Lupeni is a distance of 1 km.

The forested mountains are situated in the valley of Lupeni. Production of wood products consists of pit props and wood for construction. Production of medicinal trees consists of eucalyptus, pine and spruce.

The historical-archaeological remains are in the process of liquidation.

B. The "Lucian Petroseni" Company. This enterprise has branches at Lupeni, Local Babel, Urziceni, and Clujul lui Nea. It also has a mechanical carpentry workshop at Petroseni and at Lupeni, and a wheel workshop at Petroseni.

C. The Petroseni Forest Area. This area produces firewood and staves and cross-ties as semi-manufactured products. The Lupeni forest area produces over 300 t of charcoal annually.

#### The Textile Industry

There are 2 textile enterprises in Petroseni town, namely the "Viscosa" factory at Lupeni and the Vilcan weavery.

(a) The "Viscosa" factory came into being during World War II when the foreign capitalists, that is, stockholders in the coal mines, together with the Rumanian stockholders, founded this enterprise in order to procure war materials. The Vilcan weavery in the past was actually a factory for military equipment (gas masks).

The "Viscosa" factory is situated in Lupeni, in the meadow of the West Jiu, at the confluence of this river and Braia Brook which also supplies the necessary industrial water for this enterprise. This water has alkaline properties and is therefore much used in this industry. The whole Braia Brook supplies drinking water to the enterprise and the mines of Lupeni. Two special conduits exist for this purpose.

The "Viscosa" factory produces cellulose textile fiber, getting the raw material, cellulose, from Zarnesti. Up to the present it is the largest cellulose textile fiber factory in the country, supplying more than 70 industrial enterprises with its industrial products. In reference to production, in the framework of the 2 state plans (1949 and 1950) as well as in the framework of the first 2 years of the five-year plan, the productivity of this enterprise has grown continually. In 1951 it was 40-50% more as compared to 1949 and 1950. At the end of the five-year plan production will be 25% greater than in 1950. It appears however that this industry does not have a place in this industrial complex. On the one hand, because of the chemical methods which this industry uses, the air is charged with CO<sub>2</sub>, and on the other hand, the lack of raw materials within this rayon, cellulose, which is procured from much farther away, brings about the fact that this industry is not suitably located here (if we eliminate the usual strategic consideration which the bourgeoisie had in mind when they founded this factory).

The labor force. The majority of the workers of this enterprise come from great distances (from about 18 km), from Iscroni, Dealul Babei, and Uricani. They come by train or bus.

Apart from the local workers, the majority of the workers come from Craiova Province (Baia de Arama Rayon) and from other regions. At present 5 new apartment blocks in which 83 families can live are being constructed.

(b) The Vilcan weavery is situated in the vicinity of the Vilcan power plant.

The finished product of this enterprise is white cotton cloth. The enterprise has a daily production of 6,000 sq m. In the framework of the 2 state plans (1949, 1950) production grew by 40% as compared with 1944, and in 1951 by 42% as compared with 1952 [sig]. The finished material supplies the centers of Petrosani, Craiova, etc.

The labor force. The workers come from great distances, as from Lupeni, Aninoasa, and Petrila. Besides these workers there still are workers from other regions (particularly Craiova).

#### The Supply Industry

In Petrosani Rayon the supply industry is represented by the following enterprises.

(a) The Petrosani soda water factory has a small production capacity as compared to the needs of local consumption.

(b) The shoe factory has the same situation, having an extremely low production compared to local consumption.

(c) The Lupeni mill also has a low capacity.

Under the conditions of the Rumanian people's democratic regime, the industry of Petrosani Rayon in general and the coal

industry in particular have known a considerable quantitative and qualitative development. Quantitative development is due to the fact that new mines were opened. Qualitative development is due to the fact that, in the process of extracting the coal, work methods, technical equipment, and auxiliary mining operations were used which were completely different from those used in the past. The interrelationship between the qualitative and quantitative factor in the coal industry constantly raises this branch of the heavy industry of the Rumanian People's Republic by stages to a higher and higher position. The outstanding development of the Rumanian coal industry in general and of the industries of the Jiu Valley in particular, represents one of the many aspects of the fraternal aid of the Soviet Union given to Rumania in the work for the construction of socialism.

As opposed to the past, in the coal industry of the Jiu Valley the five-year plan provides for a superior use of the coal in the sense that it will give an unlimited development to the coking process. This will make possible direct support and support to a greater extent for the metallurgical industry of Hunedoara.

Guided by the experience of the CPSU (Communist Party of the Soviet Union), the Rumanian Worker's Party and the government of Rumania have taken and will take measures to assure the material and cultural conditions of the miners, dependent to a large extent upon the continued growth of the work productivity and the coal production in the Jiu Valley. For this purpose there were initiated and realized measures for the settlement of the problem of worker's homes, the

improvement of sanitary conditions, measures for the protection of the miners in the mines, the raising of the cultural level, the raising of professional qualifications, etc.

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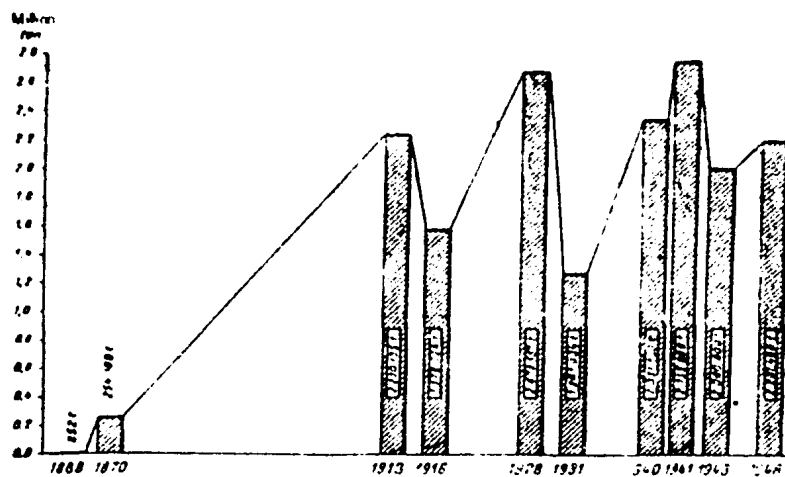


Figure 1. Evolution of coal production in the Jiu Valley, 1868-1948.

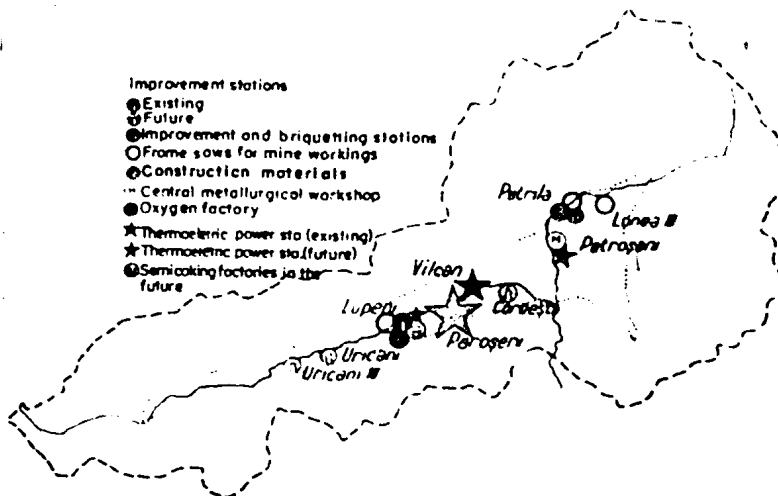


Figure 2. Supplementary industries to the coal mines of the Jiu Valley.



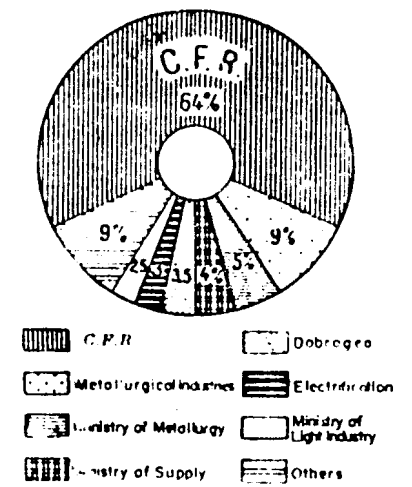


Figure 3. Consumption centers.

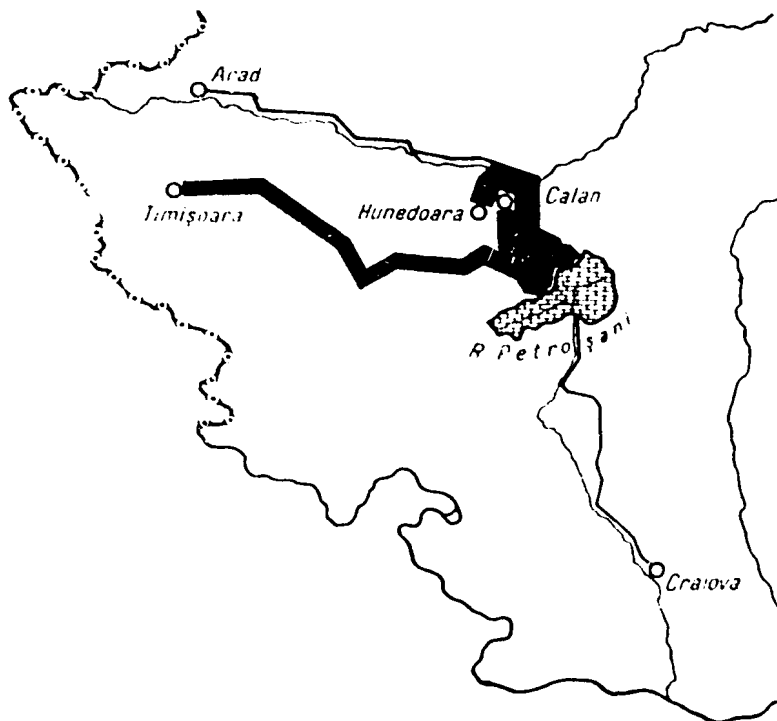


Figure 4. Consumption centers for limestone mined in Petrosani Region.

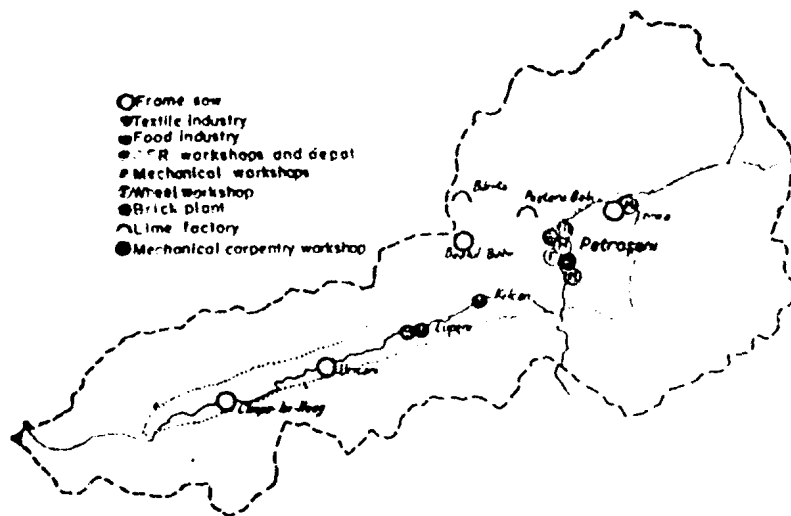


Figure 5. Industries of Petrosani Rayon (in addition to the coal industry).

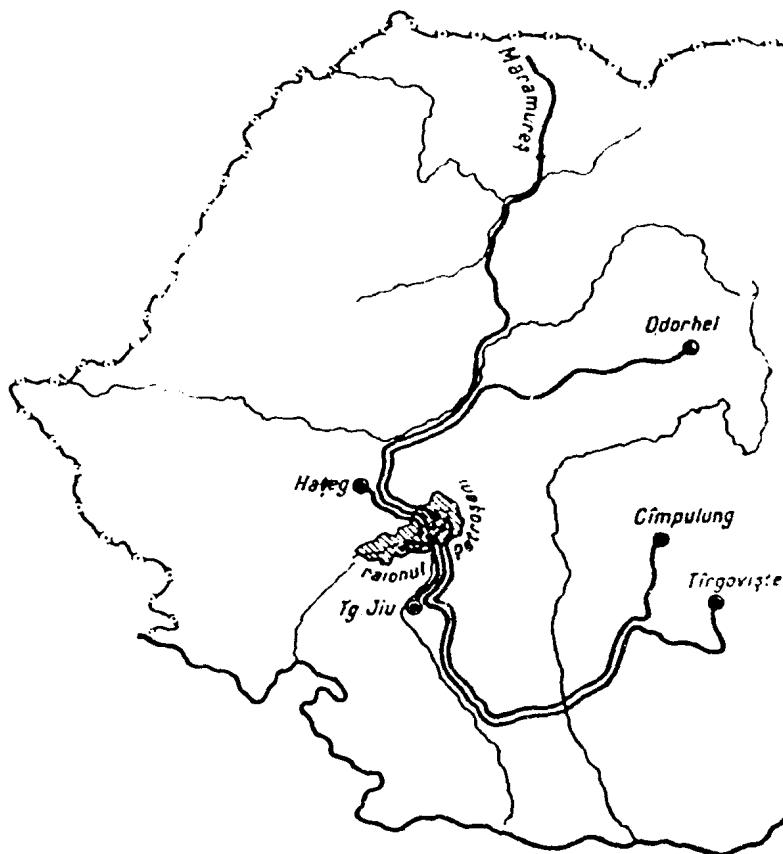


Figure 6. Place of origin of the workers in the wood industry of Petrosani Rayon.

